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ABSTRACT

Meta-analysis is a useful tool for empirically reviewing large bodies of research. It assures that lecture materials are comprehensive and that highlighted studies are supported by a body of knowledge. Many educators are not familiar with the range of topics that has been empirically summarized using meta-analytic techniques. To fill this void, a bibliography of over 200 meta-analytic applications on subjects of interest to professional educators in a variety of fields is provided. The articles were published between 1977 and 1988. In addition, the archive of meta-analytic investigations is discussed in terms of instructional practices. (Author/TJH)

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Applications of Meta-analytic Techniques: A Bibliography of Educational Resources

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Running head: Meta-analytic Applications

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Abstract

Meta-analysis is a useful tool for empirically reviewing large bodies of research. Many educators are not familiar with the range of topics which have been empirically summarized using meta-analytic techniques. To fill this void, this paper provides a bibliography of over 200 meta-analytic applications on subjects of interest to professional educators in a variety of fields. The archive of meta-analytic investigations is discussed in terms of instructional practices.

Applications of Meta-analytic Techniques: A Bibliography of Educational Resources

Since Gene Glass coined the term meta-analysis twelve years ago, interest in the technique has developed in virtually every academic discipline. Scholars are motivated to employ meta-analyses by the explosion of empirical research in the social sciences. The proliferation of meta-analytic studies offers the educator a rich source of background materials, state-of-the-art lecture supplements, and theory grounded curriculum building tools. While technical material regarding meta-analytic procedures is widely available, little has been written about the educational applications of research synthesis. Effective use of meta-analysis as an instructional resource requires integrating findings into existing education curriculum and accessing relevant meta-analytic studies. This paper responds to both issues. Suggestions for instructional practices are offered in the first section. The second section provides a bibliography of meta-analyses of interest to educators.

Meta-analysis and Instructional Practices

In the August, 1988, edition of The Teaching Professor, meta-analysis was presented as a valuable tool for interpreting

studies on instructional evaluation. By cumulating a number of studies, meta-analyses allow the reader may gain understanding of "an overwhelming amount of complex, confusing, and lots of time, contradictory research data" (p. 1). As the article suggests, scholars should consult available research syntheses to double-check lecture materials and assess the context surrounding individual studies. However, empirical reviews offer the teaching professor invaluable material in the area of curriculum development. When used to augment the professor's expertise, meta-analyses can help to assure comprehensive treatment of a subject area and organize findings in ways that increase student comprehension.

Because meta-analyses are organized around a theme or question of interest to teachers, these summaries provide comprehensive treatment of a topic. The advantages here flow from the system used to cumulate findings. For example, when Hembree (1988) examined the topic of test anxiety, he synthesized over five hundred studies and detected meaningful effect sizes for over twenty correlates, causes, and effects of the variable. This breadth of information will buttress lecture material and fill gaps in knowledge for most teachers. Further, while narrative reviews concluded that treating test anxiety did not increase academic performance, the meta-analysis demonstrated rather conclusively that treatment resulted in 6% improvement.

The point here is straightforward. A single meta-analysis can often provide comprehensive information that will fill gaps in knowledge, provide insight about the evolution of a variable, and integrate disparate findings.

The benefits of meta-analyses extend directly to student learning and comprehension. Meta-analyses may be used profitably as supplements to other teaching resources. When used in tandem with narrative reviews, meta-analyses provide students with thought provoking reading assignments and state-of-the-art supplements to textbooks. Often a meta-analysis will resolve conflicts that are raised in textbooks or narrative reviews. For example, many narrative reviews have differed on the viability of cooperation or conflict in promoting learning and achievement. A meta-analysis of 122 studies on this issue (Johnson, Maruyama, Johnson, Nelson & Skon, 1981) indicated that cooperation was consistently more effective than competitive or individualistic efforts. Further, the meta-analysis provided the moderator variables (type of task, size of group, subject area, etc.) that inhibited or enhanced effectiveness in cooperative and competitive environments. In the classroom, undergraduates often select these variables as topics for required papers. They seek to understand why a moderator variable affects cooperation/competition or dispute the findings of the meta-analysis. Regardless of the motivation, the meta-analysis

provides a powerful stimulus for classroom discussion and learning.

To summarize, because meta-analyses survey the features of a large body of literature, research syntheses are valuable for curriculum development. The procedure assures that lecture materials are comprehensive and that highlighted studies are supported by a body of knowledge. Finally, students respond favorably to assignments that combine meta-analytic and narrative reviews as supplements to textbooks. Many educators will be surprised by the number of meta-analyses that have been conducted since 1976. However, these curriculum building tools are often published in journals outside of the teacher's normal reading areas. To increase access to these materials, a bibliography has been assembled that references over 200 major meta-analyses from many academic disciplines. Readers may wish to review the bibliography and consult meta-analyses that are relevant to teaching assignments.

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